Quality Assurance Activities

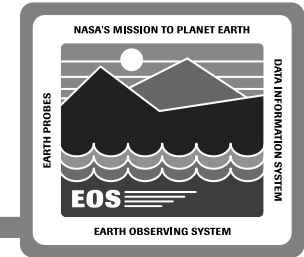## Linda Arneson-Foran
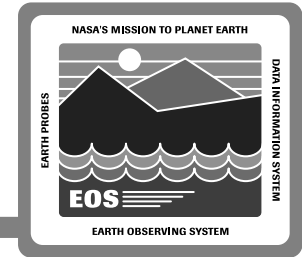
lforan@eos.hitc.com

5 August 1996

QA Activities

Development Support

- **Conducted Software Development File (SDF) Audits**
  - Purpose - Verify Establishment and Compliance of Files According to PI SD-1-005
  - Findings - Compliance was inconsistent and corrective action plan taken
- **Participated and Held Training Courses in Code Inspections (PI SD-1-004)**

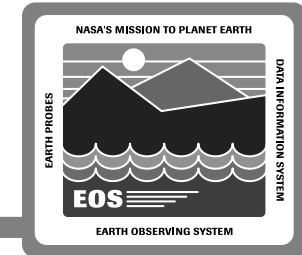|	PHASE 1	PHASE 2	PHASE 3
Total # of Inspections	52	67	67
Total # Errors	432	789	600
Errors/Inspections	8.3	11.8	8.9
Errors/KSLOC	5.02	8.13	

QA Activities (cont.)

Benefits From Inspections

- **Quality of Product Increases**
- **Overall SW Life Cycle Cost is Lower**
- **Increased Effectiveness of the Test Activity**
- **Immediate Evaluation & Feedback to Author**

Test Support

- **Reviewed Test Procedures**
- **Attended Demonstrations and Mini-TRRs**
- **Attended Software Turnover Meetings**
- **Unit Test Guidelines**
- **Code Inspection Directives**

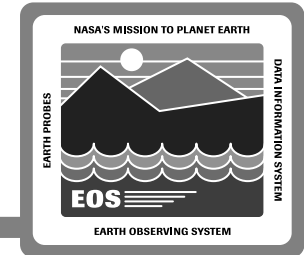# Nonconformance Reporting (NCR) Metrics & Analysis

Severity Levels

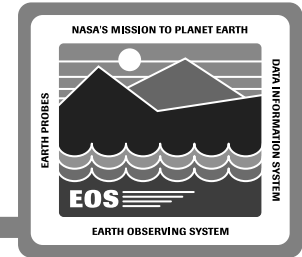|	1	2	3	4	5	Total
Phase 1 (4/30)	13	5	41	11	16	86
Phase 2 (7/19)	3	10	55	26	5	99
Total	16	15	96	37	21	185
To Date (8/2)	19	15	108	39	24	205

Total Number of Closed Severity 1 and 2 NCRs = 14

Total Number of Open Severity 1 and 2 NCRs = 20

OPEN NCRs

ECSed01741 1 D InReqMgr not accepting error status
ECSed01750 1 R Can not get Gateway to connect to Science Data Server
ECSed01866 1 D DSS FTP won't compile
ECSed01865 1 A DSS won't compile
ECSed01871 1 A STMGT code won't link
ECSed02429 1 A DDSRV has hard coded directory paths
ECSed02682 1 N Build failed
ECSed02683 1 N Build failed
ECSed02764 1 N Missing include path
ECSed01723 2 A Unable to preform CERES/LIS data type insertion
ECSed01724 2 A Undefined Data Types
ECSed02114 2 O Only actual orbit data should be processed
ECSed02112 2 O Previous orb ephem data is not copied properly to the successive day
ECSed02231 2 A Unknown service names between Ingest and Data Server
ECSed02238 2 A The InReqMgr process crashes during ingest of Aerosol Weekly data
ECSed02277 2 A Unable to access 8mm tape drives
ECSed02279 2 A Software delivery did not include all required S/W
ECSed02292 2 A Cannot successfully insert data into the Archive
ECSed02287 2 A Ingest dumps core when receives an Invalid DAN Filename
ECSed02432 2 A Phase 3 does not conform to Rel A directory structure

TRR QA Activities

- **Witness Tests**
  - **Utilize Witness Form**
  - **Ensure Compliance with Test Procedures**
  - **Document Deviations and Verify Resolutions (documentation, software, configurations, etc.)**
- **Attend NCR Status Meetings**
  - **Ensure Completeness and Clarity of NCRs**
  - **Verify Resolution - Test results and logs and witness key tests**
  - **Extract Metric Data to Monitor Process and Product Quality**
- **Track Action Items**
  - **TRR and NCR Meetings**
- **Work Jointly with ESDIS QO to Ensure Complete Involvement**

Quality Assurance Monitor/Witness Form

1) Date:_____   2) Actual Start Time:_____

                                                     3) Actual End Time: _____

4) Project Release:_____

5) Location:_____

6) Type of Test

      ß Unit Test   ß Segment/Element   ß System   ß Acceptance

      ß IV&V   ß Verification (NCR#___) ß Retest   ß Regression Test

      ß Other:_____

7) Test Case #(s):_____

8) Support Documents Type/Number (if any): _____

9) QA Representative:_____

10) Number of Participants:_____

11) Personnel assigned (other than QA Rep.):

      Tester:_____Tester Initials: _____

      Other ECS:_____

      Other:_____

12) Problems Encountered/Comments:

_____

_____

_____

_____

_____

_____

13) Disposition: ß Passed   ß Failed

                        ß Retest Scheduled:_____

QA Signature and Date:_____